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Attorney's Docket: 2002DE143
Serial No.: 10/539,033
Group: 1755

Amendments to the Claims

1. (Previously Presented) A method for the production of a phthalocyanine pigment preparation, comprising the steps of finely dividing a crude phthalocyanine pigment by a method selected from the group consisting of dry grinding, wet grinding, salt kneading, acid pasting and acid swelling to form a prepigment and subjecting the prepigment to a finish treatment in a mixture of water and an organic solvent at alkaline pH, at a temperature between 50° and 250° C and in the presence of at least one pigment dispersant selected from the group consisting of phthalocyaninesulfonic acids, phthalocyaninecarboxylic acids, phthalocyaninesulfonic salts, phthalocyaninecarboxylic salts and phthalocyaninesulfonamides.
2. (Previously Presented) The method as claimed in claim 1, wherein the crude phthalocyanine pigment is halogen-free or is substituted by up to 16 halogen atoms.
3. (Previously Presented) The method as claimed in claim 1, wherein the crude phthalocyanine pigment is a copper phthalocyanine.
4. (Previously Presented) The method as claimed in claim 1, wherein the organic solvent is selected from the group consisting of C₁-C₁₀ alcohols, glycols, polyglycols, ethers, glycol ethers, ketones, aliphatic acid amides, urea derivatives, cyclic carboxamides, nitriles, aliphatic amines, aromatic amines, chlorinated aliphatic hydrocarbons, aromatic hydrocarbons, substituted aromatics, aromatic heterocycles, sulfones sulfoxides, and mixtures thereof.
5. (Previously Presented) The method as claimed in one claim 1, wherein the

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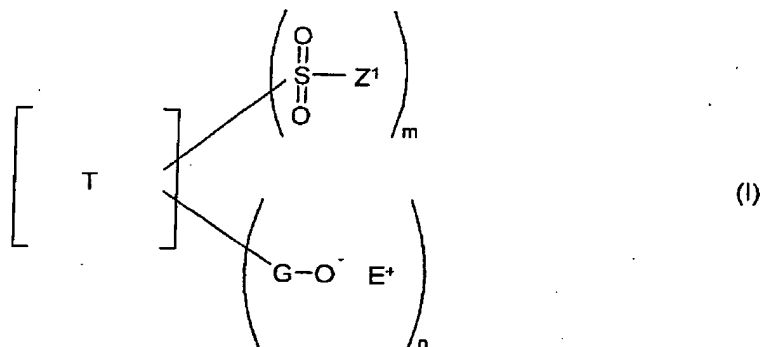
finish treatment is carried out at a pH of greater than or equal to 9.

6. (Previously Presented) The method as claimed in claim 1, wherein water and organic solvent have a weight ratio and wherein the weight ratio of water to organic solvent is 5:95 to 95:5.

7. (Previously Presented) The method as claimed in claim 1, wherein 0.5 to 40 parts by weight of the mixture of water and organic solvent are used per part by weight of crude phthalocyanine pigment.

8. (Previously Presented) The method as claimed in one claim 1, wherein the finish treatment is carried out at a temperature of 50 to 250°C.

9. (Previously Presented) The method as claimed in claim 1, wherein the pigment dispersant is a compound of the formula (I)



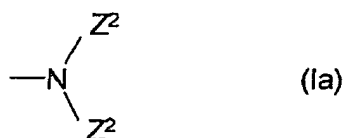
wherein

T is a phthalocyanine radical which is either metal-free or contains a metal atom selected from the group consisting of Cu, Fe, Zn, Ni, Co, Al, Ti and Sn, and wherein the phthalocyanine radical is substituted by 1 to 4 chlorine atoms or is chlorine-free;

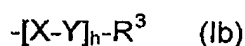
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m and n are identical or different and are a number from 0 to 4 with the proviso that the sum of m and n is a number from 1 to 4;

and wherein the radical Z^1 is a radical of the formula (Ia)



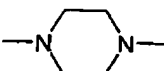
wherein the two radicals Z^2 are identical or different and are a radical of the formula (Ib)



wherein

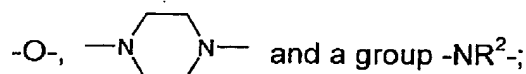
h is a number from 0 to 100;

X is a C₂-C₆ alkylene radical, C₅-C₇ cycloalkylene radical, or a combination thereof, wherein the C₂-C₆ alkylene radical, C₅-C₇ cycloalkylene radical, or combination thereof is, optionally, substituted by 1 to 4 C₁-C₄ alkyl radicals, hydroxyl radicals, C₁-C₄ alkoxy radicals, (C₁-C₄)-hydroxyalkyl radicals, 1 to 2 further C₅-C₇ cycloalkyl radicals, or, if h is > 1, the C₂-C₆ alkylene radical, C₅-C₇ cycloalkylene radical, or combination thereof is, optionally, substituted by a combination 1 to 4 C₁-C₄ alkyl radicals, hydroxyl radicals, C₁-C₄ alkoxy radicals, (C₁-C₄)-hydroxyalkyl radicals, or 1 to 2 further C₅-C₇ cycloalkyl radicals ;

Y is an -O-,  or a group -NR²-,

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or wherein Y, if $h > 1$, is, optionally, a combination of



R^2 and R^3 independently of one another are a hydrogen atom, a substituted or unsubstituted, or partly fluorinated or perfluorinated, branched or unbranched C_1 - C_{20} alkyl group, a substituted or unsubstituted C_5 - C_8 cycloalkyl group or a substituted or unsubstituted, or partly fluorinated or perfluorinated C_2 - C_{20} alkenyl group, or

R^2 and R^3 together with the nitrogen atom of the NR^2 group form a saturated, unsaturated or aromatic heterocyclic 5- to 7-membered ring optionally containing 1 or 2 further nitrogen, oxygen or sulfur atoms or carbonyl groups in the ring, wherein the saturated, unsaturated or aromatic heterocyclic 5- to 7-membered ring is unsubstituted or substituted by 1, 2 or 3 radicals selected from the group consisting of OH, NH_2 , phenyl, CN, Cl, Br, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_2 - C_4 acyl and carbamoyl, and, optionally, carries 1 or 2 benzo-fused saturated, unsaturated or aromatic, carbocyclic or heterocyclic rings;

or

Z^2 is hydrogen, hydroxyl, amino, phenyl, $(C_1$ - $C_4)$ -alkylene-phenyl, C_5 - C_{30} cycloalkyl, C_2 - C_{30} alkenyl, or is branched or unbranched C_1 - C_{30} alkyl, wherein the phenyl, $(C_1$ - $C_4)$ -alkylene-phenyl, C_5 - C_{30} cycloalkyl, C_2 - C_{30} alkenyl or the C_1 - C_{30} alkyl is, optionally substituted by one or more substituents selected from the group consisting of Cl, Br, CN, NH_2 , OH, C_6H_5 , C_6H_5 substituted by 1, 2 or 3 C_1 - C_{20} alkoxy radicals, carbamoyl, carboxyl, C_2 - C_4 acyl, C_1 - C_8 alkyl, NR^2R^3 , where R^2 and R^3 are as defined above, and

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C₁-C₄ alkoxy or wherein the C₁-C₃₀ alkyl group or the C₂-C₃₀ alkenyl group is perfluorinated or partly fluorinated;

G is a divalent group -CO-, -SO₂-, -SO₂N(R⁶)-R⁵-CO-, -SO₂N(R⁶)-R⁵-SO₂-, -CON(R⁶)-R⁵-CO- or -CON(R⁶)-R⁵-SO₂-, and R⁵ is a divalent branched or unbranched, saturated or unsaturated, aliphatic hydrocarbon radical having 1 to 20 carbon atoms, a C₅-C₇ cycloalkylene radical, or a divalent aromatic radical having 1, 2 or 3, aromatic rings, wherein, optionally, the 1, 2 or 3 aromatic rings are in fused form or are linked by a bond, wherein the aliphatic hydrocarbon, cycloalkylene, aromatic and heteroaromatic radicals are, optionally, substituted by 1, 2, 3 or 4 substituents selected from the group consisting of OH, CN, F, Cl, Br, NO₂, CF₃, C₁-C₆ alkoxy, S-C₁-C₆ alkyl, NHCONH₂, NHC(NH)NH₂, NHCO-C₁-C₆ alkyl, C₁-C₆ alkyl, COOR²⁰, CONR²⁰R²¹, NR²⁰R²¹, SO₃R²⁰ and SO₂-NR²⁰R²¹, R²⁰ and R²¹ being identical or different and being hydrogen, phenyl or C₁-C₆ alkyl, and R⁶ is hydrogen, R⁵-H, R⁵-COO⁻E⁺ or R⁵-SO₃⁻E⁺; and

E⁺ is H⁺; the equivalent M^{s+}/s of a metal cation M^{s+}, s being one of the numbers 1, 2 or 3;

a phosphonium ion; or an unsubstituted or substituted ammonium ion.

10. (Previously Presented) The method as claimed in claim 1, wherein the at least one pigment dispersant is used in an amount of 0.1% to 25% by weight, based on the crude phthalocyanine pigment.

11. (Previously Presented) The method as claimed in claim 1, wherein the mixture further comprises at least one auxiliary selected from the group consisting of surfactants, nonpigmentary dispersants, pigmentary dispersants, fillers, standardizers, resins, waxes, defoamers, antidust agents, extenders, shading colorants, preservatives, drying retarders, rheology control additives, wetting agents,

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antioxidants, UV absorbers, light stabilizers, and mixtures thereof.

12. (Previously Presented) The method as claimed in claim 9, wherein the metal atom is Cu.

13. (Previously Presented) The method as claimed in claim 9, wherein the phthalocyanine radical is chlorine-free.

14. (Previously Presented) The method as claimed in claim 9, wherein h is from 0 to 20.

15. (Previously Presented) The method as claimed in claim 9, wherein h is 0, 1, 2, 3, 4 or 5.

16. (Previously Presented) The method as claimed in claim 9, wherein at least one of R² and R³ are substituted by hydroxyl, phenyl, cyano, chlorine, bromine, amino, C₂-C₄ acyl or C₁-C₄ alkoxy, and wherein the number of substitutions is 1 to 4.

17. (Previously Presented) The method as claimed in claim 9, wherein the C₁-C₄ alkoxy is methoxy or ethoxy.

18. (Previously Presented) The method as claimed in claim 9, wherein the 1, 2, or 3 aromatic rings are linked by a bond selected from the group consisting of phenyl, biphenyl, naphthyl radical, and a heterocyclic radical having 1, 2 or 3 rings and containing 1, 2, 3 or 4 heteroatoms selected from the group consisting of O, N and S, or a mixture thereof.

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19. (Previously Presented) The method as claimed in claim 9, wherein the metal cation M^{s+} is selected from main groups 1 to 5 or from transition groups 1 or 2 or 4 to 8 of the Periodic Table of the Chemical Elements.

20. through 24. (Cancelled)

25. (New) A method for the production of a phthalocyanine pigment preparation comprising the steps of finely dividing a crude phthalocyanine pigment by a method selected from the group consisting of dry grinding, wet grinding in an inert liquid medium in a conventional continuous or discontinuous low-energy agitated ball mill operated with a power density at less than 2.5 kW per liter of grinding space and with a peripheral stirrer speed of less than 12 m/s under the action of grinding media, salt kneading, acid pasting and acid swelling to form a prepigment and subjecting the prepigment to a finish treatment in a mixture of water and an organic solvent at a pH greater than or equal to 11, at a temperature of 100°C to 250°C, and in the presence of at least one pigment dispersant selected from the group consisting of phthalocyaninesulfonic acids, phthalocyaninecarboxylic acids, phthalocyaninesulfonic salts, phthalocyaninecarboxylic salts and phthalocyaninesulfonamides.